

## CLAIMS:

1. An electrophoretic display panel (1) for displaying a picture comprising  
- a pixel (2) having

- an electrophoretic medium (5) comprising particles (6), each particle (6) having in operation an electrical multipole for being able to be moved and rotated and at least two surface portions having dissimilar optical properties, and  
5 - an optical state depending on a position and an orientation of the particles (6), and  
- a particle controller (10,11,20,21,100) arranged to enable a movement and a rotation of the particles (6) to one of the positions and one of the orientations, respectively, for displaying the picture.

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2. A display panel (1) as claimed in claim 1 characterized in that the electrical multipole is permanent.

15 3. A display panel (1) as claimed in claim 1 characterized in that the electrical multipole comprises an electrical dipole.

4. A display panel (1) as claimed in claim 1 characterized in that each particle (6) has a net charge for contributing to the ability of the particle (6) to move.

20 5. A display panel (1) as claimed in claim 1 characterized in that each particle (6) has a substantially spherical shape and two hemispheres, which have dissimilar optical properties and substantially opposite charges.

25 6. A display panel (1) as claimed in claim 1 characterized in that the particle controller is arranged to enable the movement of the particles (6) so as to locally control the density of the particles (6).

7. A display panel (1) as claimed in claim 1 characterized in that the particle controller is arranged to enable the movement of the particles (6) prior to the rotation of the particles (6).

5 8. A display panel (1) as claimed in claim 7 characterized in that

- the pixel (2) comprises a reservoir portion substantially non-contributing to the optical state of pixel (2),
- the pixel (2) comprises an optical active portion substantially contributing to the optical state of pixel (2),

10 - the particles (6) in the optical active portion are able to rotate between extreme orientations,

- the movement of the particles (6) comprises
  - a reset-movement of the particles (6) into the reservoir portion, and subsequently
  - a picture-movement of the particles (6) to the position for displaying the picture, and
- the rotation of the particles (6) comprises

15 - a reset-rotation of the particles (6) in the optical active portion to one of the extreme orientations, and subsequently

- a picture-rotation of the particles (6) in the optical active portion to the orientation for displaying the picture.

20 9. A display panel (1) as claimed in claim 1 characterized in that the display panel (1) comprises a super pixel comprising

- the pixel,
- a further pixel having particles having at least two surface portions having dissimilar optical properties and dissimilar optical properties with respect to the surface portions of the

25 particles of the pixel, and

- a still further pixel having particles having at least two surface portions having dissimilar optical properties and dissimilar optical properties with respect to the surface portions of the particles of the pixel and the particles of the further pixel.

30 10. A display device comprising the display panel (1) as claimed in claim 1.

11. Method of driving an electrophoretic display panel (1) for displaying a picture, the electrophoretic display panel comprising

- a pixel (2) having

- an electrophoretic medium (5) comprising particles (6), each particle (6) having in operation an electrical multipole for being able to be moved and rotated and at least two surface portions having dissimilar optical properties, and
  - an optical state depending on a position and an orientation of the particles (6),
- 5 the method comprising the steps of moving and rotating the particles (6) to one of the positions and one of the orientations, respectively, for displaying the picture.